SFU **GRADUATE STUDIES AND POSTDOCTORAL FELLOWS**

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MEMORANDUM ───────────────────────────────────

ATTENTION	Senate	**DATE**	October 12, 2016
FROM	Wade Parkhouse, Chair of Senate Graduate Studies Committee (SGSC)	**No.**	GS2016.26
RE:	Faculty of Communication, Art and Technology		

For information:

Acting under delegated authority at its meeting of September 12, 2016, SGSC approved the following new courses **effective Fall 2017:**

School of Interactive Arts and Technology

a) New course: IAT 803 Interdisciplinary Engagements with Science, Technology, Society and Culture
b) New course: IAT 804 Foundations of Research Design for Human-Centered Design of Interactive Technologies
c) New course: IAT 806 Interdisciplinary Design Approaches to Computing

MEMORANDUM ──────────────────────────────────

ATTENTION	Wade Parkhouse, Dean of Graduate Studies	**DATE**	August 11, 2016
FROM	Zoë Druick, FCAT Associate Dean & Chair,	**PAGES**	21 (including cover)
	FCAT-Graduate Studies Committee		
RE:	SGSC Agenda Item – SIAT New Courses		

On behalf of the Faculty of Communication, Art and Technology, I am forwarding for SGSC's consideration the following new course proposals from the SIAT Program. These changes were approved by the FGSC through electronic consultation.

1) SIAT has 3 new course proposals: 803, 804, 806.

Thank you for your attention to this matter.

Zoë Druick
Associate Dean, FCAT
Chair, FCAT Graduate Studies Committee

cc: Lyn Bartram

/encl

ZD/ld

New Graduate Course Proposal

Please save the form before filling it out to ensure that the information will be saved properly.

Course Subject (eg. PSYC)	IAT	Number (eg. 810)	803	Units (eg. 4)	3

Course title (max 100 characters including spaces and punctuation)
Interdisciplinary Engagements with Science, Technology, Society and Culture

Short title (for enrollment/transcript - max 30 characters)
Science, Technology & Culture

Course description for SFU Calendar *
Introduces the core values of interdisciplinary scholarship through engagement with history, theory and practice in the study of science, technology, society and culture. This course will be a reading-intensive, extended seminar style investigation of theoretical and historical references in science and technology studies and broader societal implications of technologies.

Rationale for introduction of this course
Please see attached for rationale.

Effective term and year Fall 2017	Course delivery (eg 3 hrs/week for 13 weeks) 3 hrs/week for 13 weeks
Frequency of offerings/year 1	Estimated enrollment/offering 25

Equivalent courses (These are previously approved courses that replicate the content of this course to such an extent that students should not receive credit for both courses.)
n/a

Prerequisite and/or Corequisite **
SIAT Graduate Student

Criminal record check required? ☐ Yes ☑ No If yes, then add this requirement as a prerequisite.

Campus where course will be taught ☐ Burnaby ☑ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

Course Components ☑ Lecture ☑ Seminar ☐ Lab ☐ Research ☐ Practicum ☐ Online ☐ _____

Grading Basis ☑ Letter grades ☐ Satisfactory/Unsatisfactory ☐ In Progress/Complete | Capstone course? ☐ Yes ☑ No

Repeat for credit? *** ☐ Yes ☑ No | Total completions allowed? ___1___ | Repeat within a term? ☐ Yes ☑ No

Required course? ☑ Yes ☐ No | Final exam required? ☐ Yes ☐ No | Additional course fees? ☐ Yes ☑ No

Combined with an undergrad course? ☐ Yes ☑ No If yes, identify which undergraduate course and what the additional course requirements are for graduate students:

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* Course descriptions should be brief and should never begin with phrases such as "This course will..." or "The purpose of this course is..." If the grading basis is satisfactory/unsatisfactory include this in the description.
** If a course is only available to students in a particular program, that should be stated in the prerequisite.
*** This mainly applies to a Special Topics or Directed Readings course.

▶ RESOURCES

If additional resources are required to offer this course, the department proposing the course should be prepared to provide information on the source(s) of those additional resources.

Faculty member(s) who will normally teach this course
Kate Hennessy, Diane Gromala, Steve DiPaola, Gabriela Aceves-Sepulveda

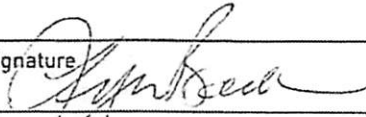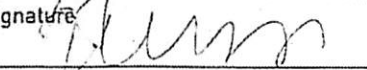| Additional faculty members, space, and/or specialized equipment required in order to offer this course |
| --- |
| n/a |

▶ CONTACT PERSON

Department / School / Program	Contact name	Contact email
SIAT	Lyn Bartram	siatgrad-chair@sfu.ca

▶ DEPARTMENTAL APPROVAL

REMINDER: New courses must be identified on a cover memo and confirmed as approved when submitted to FGSC/SGSC. Remember to also include the course outline.

Non-departmentalized faculties need not sign

Department Graduate Program Committee Lyn Bartram	Signature	Date July 6, 2016
Department Chair Thecla Schiphorst	Signature	Date July 6, 2016

▶ LIBRARY REVIEW

Library review done? ☑ YES

Course form, outline, and reading list must be sent by FGSC to lib-courseassessment@sfu.ca for a review of library resources.
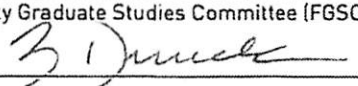
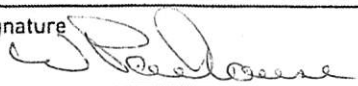## ▶ OVERLAP CHECK

Overlap check done? ☑ YES ☐ N/A

The course form and outline must be sent by FGSC to the chairs of each FGSC (fgsc-list@sfu.ca) to check for an overlap in content. An overlap check is not required for some courses (ie. Special Topics, Capstone, etc.)

▶ FACULTY APPROVAL

This approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/Department commits to providing the required Library funds and any other necessary resources.

Faculty Graduate Studies Committee (FGSC)	Signature Z Druick	Date Aug 3, 2016

▶ SENATE GRADUATE STUDIES COMMITTEE APPROVAL

Senate Graduate Studies Committee (SGSC) Wade Parkhouse	Signature	Date Oct 17/16

ADMINISTRATIVE SECTION (for DGS office only)
Course Attribute: _____
Course Attribute Value: _____
Instruction Mode: _____
Attendance Type: _____

If different from regular units:
Academic Progress Units: _____
Financial Aid Progress Units: _____

IAT 803: Interdisciplinary Engagements with Science, Technology, Society and Culture

Rationale:

The scope of this course reflects a core focus in the SIAT graduate program - the intersection between humans, technology and society. To date the SIAT graduate curriculum has not offered any one course that provides a comprehensive overview of key literature from a historical and social perspective, drawing from the diverse disciplines that comprise SIAT's intellectual foundation. This course addresses this need.

The course is designed to complement SIAT core courses in research designs and methodological traditions that are foundational to the study of interactive technologies (IAT 804: Foundations of Research Design for Human-Centred Design of Interactive Technologies) and the design and programming of interactive software systems (IAT 806: Interdisciplinary Design Approaches to Computing).

IAT 803: Interdisciplinary Engagements with Science, Technology, Society and Culture

Calendar Description

Interdisciplinary Engagements with Science, Technology, Society and Culture introduces SIAT graduate students to core values of interdisciplinary scholarship through engagement with history, theory and practice in the study of science, technology, society and culture. The course will be a reading-intensive, extended seminar style investigation of theoretical and historical references in science and technology studies and broader societal implications of technologies. It will provide each cohort with critical thinking, reading, and writing foundation for future research and design practices. The course is designed to complement core SIAT courses in Research Methodology and Computation.

The course will address questions such as: How have people been thinking and writing critically about technology, today and in the past? What counts as knowledge in the Arts and Humanities? What counts as knowledge in the Sciences? How can scholars trace their ideas back to those that preceded them in various knowledge traditions? What are some of the major assumptions that underlie how knowledge is produced in diverse disciplines? What are the extra "costs" and "benefits" of interdisciplinary work? Where do knowledge traditions merge and converge, and where/how are they in tension with one another? What are the broader implications of scientific and technological practices for society—for example, our understandings of concepts of race, ethnicity, gender, sexuality, conflict, and history? What are some of the current implications for designers in today's societal contexts?

Learning Outcomes

Students will be able to critically engage with and summarize ideas and sources that are central to the study of Interactive Arts and Technology. They will be able to communicate their course work orally, in writing, and potentially through exhibition as appropriate. Students will engage with theory and case studies of how technology and society are intertwined and its implications for the design and use of technology in today's society. They will be able to apply what they have learned in this course to their chosen field of study. The course specifically contributes to SIAT's Educational Goal "Critical Thinking, Problem Solving, Oral and Written Communication and Dissemination".

Delivery Method

Students will:
1. Participate in seminar discussions,
2. Participate in and respond in writing to select Media Screenings
3. Select and investigate a topic relevant to their research/practice,
4. Present a conceptual framework for their findings, and
5. Will submit a final project/paper that builds on individual research interests and technical skills.

Learning Activities

Response Paper (2000 words + media)   **15%**   **(Due Week 5)**
A short review paper that references course readings to date and engages critical reflection on a topic relevant to the course.

Seminar Presentation   **15%**
The presentation should consist of a summary of the readings that have been assigned for that week, with a focus on identifying and commenting on the relevance of theoretical issues that define the week's topic. Presenters will moderate a class discussion based on the themes and issues that they have identified. Presenters should prepare a visual presentation and a set of questions for discussion. Questions and relevant links and media are to be posted on the course website by the week of the presentation, in advance of the seminar.

Project Proposal (Abstract and Annotated Bibliography)   10%   (Due Week 8)
A 350-500-word abstract and annotated bibliography (unlimited number of words) that outlines your individual research project for the course. This project can have a production component as well as a significant written component. The bibliography should include readings from the course and from individual research. You have several options for this project: 1) a theoretical exploration of a topic; 2) an analysis and contextualization of a technical artifact or artwork that you analyze or create.

Term Paper + Presentation (approx. 5000 words) 45%   (Due Week 13)
Term papers will build on individual research interests and technical skills, and result in a conference-ready formatted paper (40%) and presentation (5%). Papers may include a production component (to be approved in advance).

Class Participation   **10%**
This mark will be assessed on various forms of participation, which may include attendance, weekly preparation of discussion questions, media screenings responses, blog posts (at least 5 posts between weeks 2-11), and commenting on one another's blog posts in advance of the seminar discussion.

Sample Syllabus

Week	Topic
1	Introduction to the Course & Assignments The Course Website Presentation Assignments
2	Introductory Lecture/Screening
3	SCIENCE (1) Student Presentations begin (Science Screening #1)
4	SCIENCE (2) Student Presentations
5	SCIENCE (3) Student Presentations **Response Paper Due**
6	TECHNOLOGY (1) Student Presentations (Technology Screening #1)
7	TECHNOLOGY (2) Student Presentations
8	TECHNOLOGY (3) Student Presentations **Term Project Proposal Due**
9	SOCIETY (1) Student Presentations (Society Screening #1)
10	SOCIETY (2) Student Presentations
11	SOCIETY (3) Student Presentations
12	Final Course Presentations
13	Final Papers Due

Suggested Readings/Custom Reader drawn from:

Potential Readers:

Bauchspies, W.K., Croissant, J., & Restivo, S. (2006). *Science, Technology, and Society: A Sociological Approach.* Blackwell Publishing.

Hackett, E.J. (2008). *The Handbook of Science and Technology Studies.* MIT Press.

SCIENCE

Kuhn, T. (1962). *The Structure of Scientific Revolutions.* University of Chicago Press.

Collins, H. (1990). *Changing Order: Replication and Induction in Scientific Practice.* University of Chicago Press.

Daston, L. & Galison, P. (2010). *Objectivity.* MIT Press.

Gallison, P., & Thompson, E. (1999). *The Architecture of Science.* MIT Press.

Coopmans, C., Vertesi, J., Lynch, M. E., & Woolgar, S. (2014).*Representation in Scientific Practice Revisited.* MIT Press.

Mattelart, A, & Mattelart, M. (1998). *Theories of Communication.* SAGE Publishing.

Foucault, M. (1969). *The Archaeology of Knowledge.* Editions Gallimard.

Simon, H.(select readings tba)

TECHNOLOGY

Adam, A. (1998). *Artificial Knowing: Gender and the Thinking Machine.* London: Routledge.

Bugliarello, G. & Doner, D. (1979) *The History and Philosophy of Technology.* University of Illinois Press.

Ericsson, K. A., & Simon, H. A. (1980). Verbal reports as data. *Psychological Review,* 87(3), 215-251.

Feenberg, A. (1999). *Questioning Technology.* London and New York: Routledge.

Franklin, U. (1999). *The Real World of Technology.* Toronto: House of Anansi Press.

Gitelman, L. (2006). *Always Already New: Media, History and the Data of Culture.* Cambridge, Massachusetts: MIT Press.

Heidegger, M. (1977). *The Question Concerning Technology.* HarperCollins.

Ihde, D. (1998). *Philosophy of Technology.* Paragon House.

Kittler, F. A., Winthrop-Young, G., & Wutz, M. (1999). *Gramophone, film, typewriter.* Stanford, California: Stanford University Press.

Latour, B. (1986). *Laboratory life: the construction of scientific facts.* Princeton, New Jersey: Princeton University Press.

Latour, B. (1988). *The Pasteurization of France.* Cambridge, Massachusetts: Harvard University Press.

Latour, B. (1990). Visualization and Cognition: Drawing Things Together. In M. Lynch & S. Woolgar (Eds.), *Representation in Scientific Activity* (pp. 19-68). Cambridge, Massachusetts: MIT Press.

Latour, B. (1993). *We have never been Modern.* Cambridge, Massachusetts: Harvard University Press.

Latour, B. (2005). *Reassembling the social: an introduction to actor-network theory.* Oxford and New York: Oxford University Press.

Parikka, J. (2012). *What Is Media Archaeology?* Cambridge, UK: Polity Press.

Parikka, J. (2010). *Insect Media An Archaeology of Animals and Technology.* Minneapolis: University of Minnesota Press.

Simon, H. A. (1972). Theories of Bounded Rationality. In C. B. McGuire & R. Radner (Eds.), *Decision and Organization* (pp. 161-176). Amsterdam: North-Holland Publishing Company.

Simon, H. A. (1973). The structure of ill structured problems, *Artificial Intelligence, 4,* 181-201.

Sterne, J. (2012). *MP3: The Meaning of a Format.* Durham: Duke University Press.

Verbeek, P. P. (2011). *Moralizing Technology: Understanding and Designing the Morality of Things.* London: University Of Chicago Press.

Williams, R. (2004). *Television: Technology and Cultural Form.* Routledge.

SOCIETY

Bennett, J. (2010). *Vibrant Matter: A Political Ecology of Things.* Durham: Duke University Press.

Crary, J. (1990). *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century.* Cambridge, Massachusetts: MIT Press.

Crary, J. (1999). *Suspensions of Perception: Attention, Spectacle, and Modern Culture.* Cambridge, Massachusetts: MIT Press.

Drucker, J. (2014). *Graphesis Visual Forms of Knowledge Production.* Harvard University Press.

Duncan, C. (1995). *Civilizing Rituals: Inside Public Art Museums.* London and New York: Routledge.

Haraway, D. (1989). *Primate Visions: Gender, Race, and Nature in the World of Modern Science.* Routledge.

Hayles, N. K. (1991). *How We Became Posthuman; Virtual Bodies in Cybernetics, Literature, and Informatics.* University of Chicago Press.

Mackenzie, D. (1993). *Inventing Accuracy: A Historical Sociology of Nuclear Missile Guidance.* MIT Press.

Medina, E. (2011). *Cybernetic Revolutionaries: Technology and Politics in Allende's Chile*. MIT Press.

Michael F. (2000). A Museum and Its Memory: The Art of Recovering History. In S.A. Crane (Ed.), *Museums and Memory* (pp. 35-59) Stanford University Press.

Plant, S. (1997). *Zeroes + Ones: Digital Women + the New Technoculture*. New York: Doubleday.

Redman, S. (2016). *Bone Rooms: From Scientific Racism to Human Prehistory in Museums*. Harvard University Press.

Santos, B. (2007). *Beyond Abyssal Thinking. From Global Lines to Ecologies of Knowledge*. Retrieved from: http://www.eurozine.com/articles/2007-06-29-santos-en.html

Santos, B. (2014). *Epistemologies of the South: Justice against Epistemicide*. Paradigm Publishers.

Wolfe, C. (2009). *What is Posthumanism?* Minneapolis: University of Minnesota Press.

<u>Potential Media Supplements</u>:

Dauman, A. (Producer), & Marker, C. (Director). (1962). *La Jetée* [Motion picture]. France: Argos Films.

Deeley, M. (Producer), & Scott, R. (Director). (1982). *Blade Runner* [Motion picture]. United States: Warner Brothers. Based on Dick, P. K. (1968). *Do Androids Dream of Electric Sheep?* Doubleday.

Macdonald, A., & Reich, A. (Producers), & Garland, A. (Director). (2015). *Ex_Machina* [Motion picture]. United Kingdom: Universal Pictures; United States: A24.

Milchan, A. (Producer), & Gilliam, T. (Director). (1985). *Brazil* [Motion picture]. United Kingdom: 20th Century Fox; United States: Universal Pictures.

Peña, G., & Fusco, C. (1993). *The Couple in the Cage: Guatianaui Odyssey*. Retrieved from: http://www.vdb.org/titles/couple-cage-guatianaui-odyssey

Perry, S. (Producer), & Radford, M. (Director). (1984). *Nineteen Eighty-Four* [Motion picture]. United Kingdom: 20th Century Fox; United States: Atlantic Releasing.

Sperling, M. (Producer), & Brinckerhoff, B. (Director. (1980). *Brave New World* [Motion picture]. United States: National Broadcasting Company.

Suzuki, R., & Kato, S. (Producers), & Otomo, K. (Director). (1988). *Akira* [Motion picture]. Japan: Toho.

Tarasov, V. (Producer), & Tarkosky, A. (Director). (1972). *Solaris* [Motion picture]. Soviet Union.

New Graduate Course Proposal

Please save the form before filling it out to ensure that the information will be saved properly.

Course Subject (eg. PSYC)	IAT	Number (eg. 810)	804	Units (eg. 4)	3

Course title (max 100 characters including spaces and punctuation)
Foundations of Research Design for Human-Centred Design of Interactive Technologies

Short title (for enrollment/transcript - max 30 characters)
Foundations of Research Design

Course description for SFU Calendar *
Provides an introduction to different epistemological worldviews, research approaches and methodological traditions of inquiry that are used to conduct research within SIAT. Students are introduced to a range of ways of knowing and inquiring in human-centred design, development and analysis of interactive technologies including scientific, social science, humanities, design and art-based approaches.

Rationale for introduction of this course
Please see attached for rationale.

Effective term and year **Fall 2017**	Course delivery (eg 3 hrs/week for 13 weeks) **3 hrs/week for 13 weeks**
Frequency of offerings/year **1**	Estimated enrollment/offering **25**

Equivalent courses (These are previously approved courses that replicate the content of this course to such an extent that students should not receive credit for both courses.)
n/a

Prerequisite and/or Corequisite **
SIAT Graduate Student

Criminal record check required? ☐ Yes ☑ No If yes, then add this requirement as a prerequisite.

Campus where course will be taught ☐ Burnaby ☑ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

Course Components ☑ Lecture ☑ Seminar ☐ Lab ☐ Research ☐ Practicum ☐ Online ☐

Grading Basis ☑ Letter grades ☐ Satisfactory/Unsatisfactory ☐ In Progress/Complete	Capstone course? ☐ Yes ☑ No
Repeat for credit? *** ☐ Yes ☑ No Total completions allowed? __1__	Repeat within a term? ☐ Yes ☑ No
Required course? ☑ Yes ☐ No Final exam required? ☐ Yes ☐ No	Additional course fees? ☐ Yes ☑ No

Combined with an undergrad course? ☐ Yes ☑ No If yes, identify which undergraduate course and what the additional course requirements are for graduate students:

* Course descriptions should be brief and should never begin with phrases such as "This course will..." or "The purpose of this course is..." If the grading basis is satisfactory/unsatisfactory include this in the description.
** If a course is only available to students in a particular program, that should be stated in the prerequisite.
*** This mainly applies to a Special Topics or Directed Readings course.

▨▷ RESOURCES

If additional resources are required to offer this course, the department proposing the course should be prepared to provide information on the source(s) of those additional resources.

Faculty member(s) who will normally teach this course
Alissa Antle, Thecla Schiphorst, Brian Fisher, Bernhard Riecke, Lyn Bartram

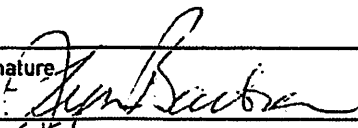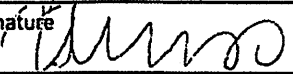| Additional faculty members, space, and/or specialized equipment required in order to offer this course |
| --- |
| n/a |

▨▷ CONTACT PERSON

Department / School / Program	Contact name	Contact email
SIAT	Lyn Bartram	siatgrad-chair@sfu.ca

▨▷ DEPARTMENTAL APPROVAL

REMINDER: New courses must be identified on a cover memo and confirmed as approved when submitted to FGSC/SGSC. Remember to also include the course outline.

Non-departmentalized faculties need not sign

Department Graduate Program Committee	Signature	Date
Lyn Bartram		July 6, 2016
Department Chair	Signature	Date
Thecla Schiphorst		July 6, 2016

▨▷ LIBRARY REVIEW

Library review done? ☑ YES

Course form, outline, and reading list must be sent by FGSC to lib-courseassessment@sfu.ca for a review of library resources.

▨▷ OVERLAP CHECK

Overlap check done? ☑ YES ☐ N/A

The course form and outline must be sent by FGSC to the chairs of each FGSC (fgsc-list@sfu.ca) to check for an overlap in content. An overlap check is not required for some courses (ie. Special Topics, Capstone, etc.)

▨▷ FACULTY APPROVAL

This approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/Department commits to providing the required Library funds and any other necessary resources.

Faculty Graduate Studies Committee (FGSC)	Signature	Date
Z Druick		Aug 3, 2016

▨▷ SENATE GRADUATE STUDIES COMMITTEE APPROVAL

Senate Graduate Studies Committee (SGSC)	Signature	Date
Wade Parkhouse		Oct 17/16

ADMINISTRATIVE SECTION (for DGS office only)
Course Attribute: _____
Course Attribute Value: _____
Instruction Mode: _____
Attendance Type: _____

If different from regular units:
Academic Progress Units: _____
Financial Aid Progress Units: _____

IAT 804: Foundations of Research Design for Human-Centred Design of Interactive Technologies

Rationale:

This course provides an introduction to different disciplinary research designs and methodological traditions of inquiry that are used to conduct research within SIAT. It provides the basis for interdisciplinary research design that draws from the diverse disciplines in science, social science, design, culture and art that comprise SIAT's intellectual foundation. It serves as a foundation for SIAT's existing and more specialized courses in applied quantitative and qualitative research methods. The lack of such a course in the past has meant that students did not achieve a sufficient comprehensive understanding of how to select and design research methods for human-centred interactive technologies.

The course is designed to complement SIAT core courses in the theory and history of interactive technologies (IAT 803: Interdisciplinary Engagements with Science, Technology, Society and Culture) and the design and programming of interactive software systems (IAT 806: Interdisciplinary Design Approaches to Computing).

IAT 804 Foundations of Research Design for Human-Centred Design of Interactive Technologies

Learning Outcomes

Students will be able to competently identify, analyze, and create research designs in at least three different traditions.

Calendar Description

This course provides an introduction to different epistemological worldviews, research approaches and methodological traditions of inquiry that are used to conduct research within SIAT. Students are introduced to a range of ways of knowing and inquiring in human-centred design, development and analysis of interactive technologies including scientific, social science, humanities, design and art-based approaches.

Course covers topics including:
1. Key terms: paradigm, epistemology, ontology, axiology, rhetoric, methodology, design, research. Research approaches as combination of worldview, research designs and methodologies.
2. Review -- Ways of knowing and inquiring: introduction and assumptions behind different philosophical worldviews or paradigms (e.g. post-positivism, constructionism, pragmatism)
3. Different kinds of research designs based on quantitative/qualitative/mixed, deductive/inductive/abductive and objective/subjective approaches
4. Introduce three (of many) lenses for research: How is an artifact **effective**? What is the human **experience** around using an artifact? What do we know through the **creation** of an artifact?
5. Epistemological origins and characteristics of different methodological traditions of inquiry that can be used to investigate the three lenses (Effective? (Scientific Method/Experimental) Experience? (Ethnographic) Creation? (Art/design-based research)).
6. Introduction of other methodological traditions: observation, participant-observer, query (survey/questionnaire/interview), hermeneutic phenomenology, close reading, historical, biographic, grounded theory, case study, art practice-based, TBD based on survey).
7. Summary of methods associated with different methodologies [summary/conceptual only --- how to use methods us being pushed into content courses]. May push some of this to online tutorials.
8. Using theory in different research designs (hypothesis generation, analytical lens, design rationale etc) focusing on the "work" theory does in different approach
9. Traditions of rhetoric (e.g. using analytical or argumentative reasoning); literature review and problem framing in different traditions
10. Rigor: validity/trustworthiness and reliability/credibility for different methodological traditions
11. Process and criteria for choosing, creating and refining different kinds of research designs including u/s research problem and questions.
12. Research ethics and the ethics of working with human subjects.

Sample Syllabus:
- Week 1: Topics 1&2: What is research at SIAT? Terms and worldviews.
- Week 2: Topics 3&12: Traditions of research designs + Basics of a Lit Review; Ethics assignment outside of class-time.
- Week 3: Topic 4/5/6. Three lenses for research at SIAT: investigating: effective, experience, and creation: experimental, ethnography and art/design-based approaches. Intro to other methodologies (see topic 6).
- Week 4/5: Effective: Experimental Research Study Designs, RQs, validity/reliability and methods [spent two weeks b/c don't cover quant anywhere else]
- Week 6: Experience: Ethnographic Research Study Designs, RQs, validity/reliability and methods. [cover other qual methods in week 9]
- Week 7: Artifact: Art/Design-based Designs, RQs, validity/reliability and methods.
- Week 8: Workshopping Assignment 2: Presentations on Effective, Experience, Artifact.
- Week 9: Summary: Query Methods, Grounded Theory [Mini-assignment 1 due in class]
- Week 10: Summary: Historical. Biographical. Case studies [Mini-assignment 2 due in class]
- Week 11: Summary: Phenomenology, Reflective Practice [Mini-assignment 3 due in class]
- Week 12: Uses/Generation of Theory (Hypothesis generation, analytical lenses, generated, etc) [possibly move up/include w/ methodologies] AND Rhetoric [possibly move up/include w/ methodologies]
- Week 13: Workshopping-critique of Assignment 3: final papers.

Assessment
1. All students must complete TCPS2 (SFU ethics) to pass course. Hand in a one pager based on pre-set (TBD) questions. 5%.
   - LO: Understand process required to get ethics approval for work with human subjects as well as other ethical concerns related to conducting and reporting research.
2. Short paper/in class small group discussion (15%) – **Analysis** of an assigned paper (chosen from one paper per each of three lenses): what was the worldview? Research design/approach? Methodology? What work did theory do? Why do you think authors chose this approach? Can you think of another approach? How was validity assessed? How do the strengths of knowledge claims fit with the approach? What if any are ethical concerns of the work?
   - LO: Practice identifying and analyzing methodological approaches, research designs and data collection and analysis methods for an existing piece of research.
3. Workshop-Critique/In-class presentation (15%) – **High level creation** of a research study(s) for one of three *assigned RQs/problem/phenomena* including worldview, research design, methodology, ethical concerns, validity, use of theory. Student must choose a tradition that they are not familiar with.
   - LO: Practice analyzing a research problem and creating a research design from different methodological traditions including a compare/contrast reflection.
4. Mini-assignments (15%) – **Hands-on exercises** related to students answering research questions (pre-specified) by **analyzing and interpreting** mixed data sets (existing) from different methodological traditions and writing up short summaries of findings/claims using **rhetoric** from specific methodological traditions.

- LO: Practice conducting analysis and interpretation of data sets from different traditions including compare/contrast reflection.
5. Paper (50%) – **Create a detailed research design** -- Take an existing paper(s) in YOUR research area from your literature review. Frame a single new RQ in the context of existing work. Have RQ approved by instructor and supervisor. Create a plan for a research design in a single methodological tradition that is appropriate to answer this research question. What research design did you choose and why? What methodology(s) did you choose and why? Focus on justifying your choice of methodology given the nature of your research question (and problem). Process: Student draft papers are distributed to class. Each student must review two papers and provide written critique (5%).
    - LO: Practice all above in process of creating own research design suitable for future thesis work at Masters and/or PhD level as appropropriate.

Delivery Model

As above w/ in-class critiques, presentations, hands-on work w/ existing data sets etc. Seminar style class w/ readings. Procedures for data collection, analysis and interpretation methods are introduced through external tutorials where possible. *[Need to identify these]*. Estimate 0-25 students per year offered in Spring.

Textbooks
- Required: Creswell, **"Research Design"** (SAGE Publication, 4th edition, 2013) - covers quantitative, quantitative, and mixed methods research in an easy-to-understand format. Ideal for the beginning researcher.
- Recommended:
- Creswell, **"Qualitative Inquiry: Choosing Among Five Approaches"** (SAGE Publication, 3rd edition, 2013).
- Martin, **"Doing Psychology Experiments"** OR Field, A., & Hole, G. J. (2003). "How to Design and Report Experiments. Sage Publications."

Course Pack (TBD) including but not limited to:

Bayazit, N. (2014). Investigating Design: A Review of Forty Years of Design Research. *Design Issues* 2004 20(1), 16-29.

Cross, N. (1999). Design Research: A Disciplined Conversation. *Design Issues, 15*(2), 5-10. http://doi.org/10.2307/1511837

Hart, C. (2015). Research-Creation: A Scholarship of Creativity. *Journal of the New Media Caucus 11*(3).

Latoschik, M. E., & Stuerzlinger, W. (2014). On the Art of the Evaluation and Presentation of RIS-Engineering. Proceedings of the Software Engineering and Architectures for Realtime Interactive Systems Conference. doi:10.1109/SEARIS.2014.7152796

Stolterman, E., & Wiberg, M. (2010). Concept-driven Interaction Design Research. *Human Computer Interaction 25*(2). 95-118.

Visser. W. S. (2010). Design as a Problem-Solving Activity. Collection, Parsons Paris School of Art and Design. Art & Design & Psychology, pp.11-16.

Zimmerman, J. Forlizzi, J., & Evenson. S. (2007). Research through design as a method for interaction design research in HCI. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* 493-502. doi:10.1145/1240624.1240704

New Graduate Course Proposal

Please save the form before filling it out to ensure that the information will be saved properly.

Course Subject (eg. PSYC)	IAT	Number (eg. 810)	806	Units (eg. 4)	3

Course title (max 100 characters including spaces and punctuation)
Interdisciplinary Design Approaches to Computing

Short title (for enrollment/transcript - max 30 characters)
Design Approaches to Computing

Course description for SFU Calendar *
Introduces students to computer programming that encompasses knowledge of art/design history and practices, and introduces a deep approach to design thinking in creating interactive software projects. This programming-intensive course includes an introduction to Interactive Design Computing and the history of ideas that lead to modern interactive computing systems and emphasizes decision making in software design process, historical perspective of art and design, interactive software objects, iterative design cycles and design rationale in producing interactive software and introduces a historical perspective on these techniques.

Rationale for introduction of this course
Please see attached for rationale.

Effective term and year Fall 2017	Course delivery (eg 3 hrs/week for 13 weeks) 3 hrs/week for 13 weeks
Frequency of offerings/year 1	Estimated enrollment/offering 25

Equivalent courses (These are previously approved courses that replicate the content of this course to such an extent that students should not receive credit for both courses.)
n/a

Prerequisite and/or Corequisite **
SIAT Graduate Student

Criminal record check required? ☐ Yes ☑ No If yes, then add this requirement as a prerequisite.

Campus where course will be taught ☐ Burnaby ☑ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

Course Components ☑ Lecture ☑ Seminar ☐ Lab ☐ Research ☐ Practicum ☐ Online ☐ _____

Grading Basis ☑ Letter grades ☐ Satisfactory/Unsatisfactory ☐ In Progress/Complete	Capstone course? ☐ Yes ☑ No

Repeat for credit? *** ☐ Yes ☑ No	Total completions allowed? __1__	Repeat within a term? ☐ Yes ☑ No

Required course? ☑ Yes ☐ No	Final exam required? ☐ Yes ☐ No	Additional course fees? ☐ Yes ☑ No

Combined with an undergrad course? ☐ Yes ☑ No If yes, identify which undergraduate course and what the additional course requirements are for graduate students:

* Course descriptions should be brief and should never begin with phrases such as "This course will..." or "The purpose of this course is..." If the grading basis is satisfactory/unsatisfactory include this in the description.
** If a course is only available to students in a particular program, that should be stated in the prerequisite.
*** This mainly applies to a Special Topics or Directed Readings course.

RESOURCES

If additional resources are required to offer this course, the department proposing the course should be prepared to provide information on the source(s) of those additional resources.

Faculty member(s) who will normally teach this course
Chris Shaw, Steve DiPaola, Philippe Pasquier

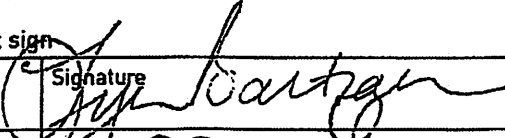| Additional faculty members, space, and/or specialized equipment required in order to offer this course |
|---|
| n/a |

CONTACT PERSON

Department / School / Program	Contact name	Contact email
SIAT	Lyn Bartram	siatgrad-chair@sfu.ca

DEPARTMENTAL APPROVAL

REMINDER: New courses must be identified on a cover memo and confirmed as approved when submitted to FGSC/SGSC. Remember to also include the course outline.

Non-departmentalized faculties need not sign

Department Graduate Program Committee Lyn Bartram	Signature	Date July 21, 2016
Department Chair Thecla Schiphorst	Signature	Date July 21, 2016

LIBRARY REVIEW

Library review done? ☑ YES

> Course form, outline, and reading list must be sent by FGSC to lib-courseassessment@sfu.ca for a review of library resources.

OVERLAP CHECK

Overlap check done? ☑ YES   ☐ N/A

> The course form and outline must be sent by FGSC to the chairs of each FGSC (fgsc-list@sfu.ca) to check for an overlap in content. An overlap check is not required for some courses (ie. Special Topics, Capstone, etc.)

FACULTY APPROVAL

This approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/Department commits to providing the required Library funds and any other necessary resources.

Faculty Graduate Studies Committee (FGSC) Z Druick	Signature	Date Aug 3, 2016

SENATE GRADUATE STUDIES COMMITTEE APPROVAL

Senate Graduate Studies Committee (SGSC) Wade Parkhouse	Signature	Date Oct 17/16

ADMINISTRATIVE SECTION (for DGS office only)
Course Attribute: _____
Course Attribute Value: _____
Instruction Mode: _____
Attendance Type: _____

If different from regular units:
Academic Progress Units: _____
Financial Aid Progress Units: _____

IAT 806: Interdisciplinary Design Approaches to Computing

Rationale:

This course introduces SIAT graduate students to interdisciplinary computational art and design approaches in programming and computational making. It replaces the previous programming course IAT 800 that was originally intended to introduce non-programmers to the field. Computation and the special aspects of computation in design and interaction, are an essential pillar of SIAT research. The new course extends the introduction to computation in the art and design fields with emphases that apply to all SIAT graduate students.
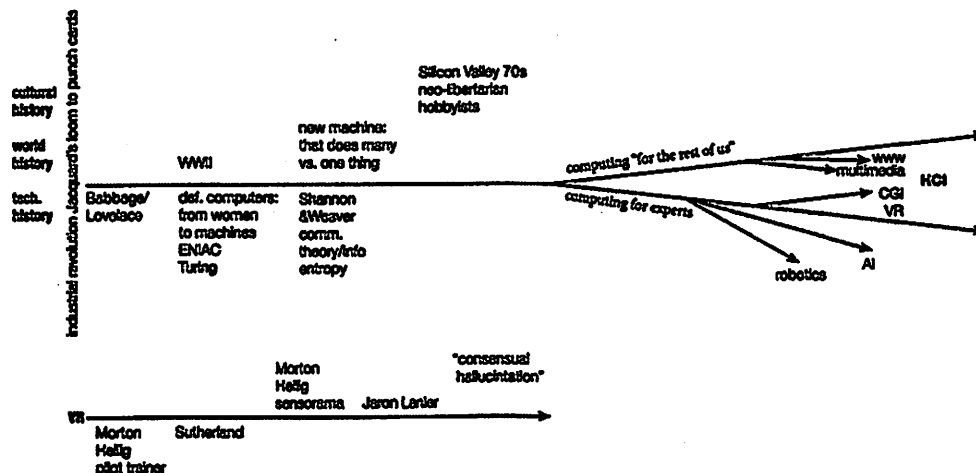
This course forms part of a cohort complement of encompassing three courses, of which the others are IAT 803 and IAT 804.

IAT 806 Interdisciplinary Design Approaches to Computing

Calendar Description

Interdisciplinary Design Approaches to Computing introduces SIAT graduate students to interdisciplinary computational art and design approaches in programing techniques; that is computer programming that encompasses knowledge of art/design history and practices, and introduces a deep approach to design thinking in creating interactive software projects. This course also encompasses an introduction to Interactive Design Computing and the history of ideas that lead to modern interactive computing systems. The course will be a programming-intensive course that emphasizes decision making in software design process, historical perspective of art and design interactive software objects, iterative design cycles and design rational in producing interactive software. As well it introduces a historical perspective on these techniques.

Students will engage with the practice of making interactive technology by writing programs in an object-oriented programming language by their design and implementation in software in a progression of interactive software projects based on interdisciplinary goal oriented design needs. They will also be able to engage critically with the intellectual and ideological underpinnings of interactive computing.

This diagram illustrates the history of interactive computing, with an inset below briefly outlining the history of VR, with cultural aspects above the line and technical aspects below the line.

Student programming assignments culminate in a term-long project, where each student will engage with a stakeholder of their choosing to design and develop an interactive computing system ideally in collaboration with the stakeholder. There will also be a final essay containing a critical analysis of readings that concern an issue in interdisciplinary techniques interactive computing, such as ethics, the aesthetics of computing platforms, the ideology of visual realism, the power of interactive systems to enforce compliance, and any other reasonable issue germane to visual computing.

Course Organization

The course would take a parallel tracks model, with the computer/technical materials introduced on Tuesdays, and the interdisciplinary computation media history and theory taking place on Thursday.

Grading

Programming Assignments	15%
Final Programming Project	35%
Readings Assignments	15%
Final Essay	35%
Total	100%

Learning Outcomes

Students will be able to critically engage in interdisciplinary design thinking in the development, design, and implementation and testing of interactive software projects. Students will be able to bring in knowledge and practices from art making, design process and the historical record of interactive design computing into their software practices. Students will learn to express themselves programmatically. Students will understand computing as problem-solving, computing as aesthetic experience, computing as expressive media, computing as a user-centered artifact.

Suggested Readings/Custom Reader drawn from:

Agre, P. (1997). *Computation and human experience.*

Bolter, J., & Gromala, D. (2005). *Windows and Mirrors.*

Borges, J. L. (1941). *The Garden of Forking Paths.*

Engelbart, D. C. (1962). *Augmenting Human Intellect: A Conceptual Framework.*

Fitzmaurice, G., Ishii, H., & Buxton, W. (1995). *Bricks: Laying the Foundations for Graspable User Interfaces.*

Foley, J. D. (1987). *Interface for Advanced Computing.*

Galanter, P. (2012). *Computational Aesthetic Evaluation: Past And Future, From Computers and Creativity.*

Kay, A. C. (1972). *A Personal Computer for Children of All Ages.*

Kaprow, A. (1961). *Happenings in the New York Scene.*

Krueger, M. (1977). *Responsive Environments.*

Lessig, L. (2000). *Code is Law: On Liberty in Cyberspace*

Mateas, M. (2001). *Expressive AI: A hybrid art and science practice.*

Reas, C., & McWilliams, C. (2012). *Form and Code.* Princeton Architectural Press.

Sengers, P., Boehner, K., David, S., & Kaye, J. J. (2005). *Reflective Design.*

Shneiderman, B. (1983). *Direct Manipulation: a Step Beyond Programming Languages.*

Sutherland, I. (1963). *Sketchpad.*

Weiser, M. (1993). *Ubiquitous Computing.*

Four Selections by Experiments in Art and Technology
    From "The Garden Party"
    Billy Klüver, 1961
    From *9 Evenings*
    E.A.T., 1966
    [Press Release]
    E.A.T., 1967
    The Pavilion
    Billy Klüver, 1972

New Media from Borges to HTML
    Lev Manovich [online version is excerpt]

Key episodes from the TV show *Silicon Valley*